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into two equal Parts, one half employed in sucking, and the other in blowing ; therefore the Half of 145. 882 Feet, which is 72. 941 Feet, will represent the Height of a Column of Air, that would occasion the same Pressure with which the centrifugal Force and the circular Motion act in this Machine ; and a Column of this Height producing a Velocity of 68. 53 Feet *per Second*. This Number will express the Velocity with which the Air is sucked into the Wheel ; and the same Number will also express the Velocity of the Air out of the Blower, proceeding from the centrifugal Force, and the circular Velocity of the outer Circle, which is the real Velocity of the Stream of Air out of the Blower of this Machine, *viz.* 68. 53 Feet *per Second*, which is at the Rate of a Mile in about 77 Seconds, or about 7 Miles in 9 Minutes.

III. The Uses of the foregoing Machine, communicated in a Letter to Cromwell Mortimer, M. D. R. S. Secr. Feb. 23, 1738. from the same.

S I R,

ACCORDING to my Promise I send you a further Account of my centrifugal Wheel, which is now fix'd in a Room above the House of Commons, to draw away the hot Steam arising from the Candles, and the Breath of the Company in the House, when it is very full, in warm Weather ; as also afterwards to

to drive in a Stream of fresh Air, to spread uniformly all over the House, by coming in at the middle of the Cieling.

The Uses of this Machine for sick Rooms, for Prisons, for warming, cooling, or perfuming any Chambers at a distance, were spoken of in the Explanation of the Model I shew'd the Society. The Machine may also serve in a Man of War, to take away the foul Air between Decks, occasion'd by the Number of Men in the Ship, and to give them fresh Air in a few Minutes. In every Part of the Vessel every foul Hole may be render'd wholesome, and even the Stench and foul Air from the Surface of the Bulge-Water may be carried off. In regard to Mines, the Machine must prove of excellent Use ; for as the Damps (either fulminating, which taking Fire, destroy the Men and ruin the Works, or arsenical, which kill by their poisonous Nature) are some specifically lighter, and some specifically heavier than common Air, this centrifugal Wheel can in a little Time drive down Air through wooden Trunks (or Launder) of seven Inches bore, in such Quantities into the deepest Mines, as to cause all the light Damp to come out at the Top of the Pit ; or, by only altering two Sliders, suck away all the heavy poisonous Damp, whilst wholesome Air goes down from above Ground into the Pit, so as to fill all the subterraneous Caverns with fresh and wholesome Air.

Likewise a great many of the Difficulties which attend the carrying on subterraneous Passages for the Conveyance of Water from Mines (call'd Soughs, Adits, or Drifts) may be remov'd by the Help of this Wheel ;

Wheel ; for the fresh Air may be driven in a very little Time to the Place where the Men are at work, though at the Distance of 2, 3, or 4 Miles, and therefore also to any intermediate Space ; whereas the Practice now is, either to make a double Drift with Communications between the two for the Circulation of the Air, or to sink perpendicular Shafts or Pits from the Top of the Hill over the Adit ; both which Methods are very expensive, and (I dare say) will, upon Tryal, be out-done by the Application of my Machine. *I am,*

S I R,

Your most humble Servant,

J. T. Desaguliers.

IV. *The Case of a Cataleptic Woman : Communicated to the Royal Society by Richard Reynell, Apothecary, London.*

A NN Bullard, a Servant, about one and twenty Years of Age, had been for some time irregular in her *Menses*, and very much afflicted for the Loss of a Friend. *July the Tenth, 1730.* she complained of a Pain in her Head, Sicknes in her Stomach,